

LISTing Newsletter

Newsletter of the Long Island Sinclair/Timex Users Group
(Incorporating N.Y.T.S.E.)

February 1993
Issue

Next Meeting Feb 21, 1993

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LISTing Policy

Annual Dues....\$16.00

One "sample" copy sent upon receipt of a large SASE.

Copies provided on EXCHANGE BASIS with other bona fide user groups. LISTing is published monthly except July and August by LIST (Long Island Sinclair Timex) Group, a non profit user group.

We are always looking for articles, programs, reviews, etc. to keep our members informed and entertained. You maintain full copyright.

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 LIST OFFICERS

 PRES. HARVEY RAIT
 TRES. ROBERT MALLOY
 COR. SEC. JOHN PAZMINO
 EDITOR. FRED STERN
 LIBR. TOM SKAPINSKI

PLEASE SEND INQUIRIES TO:
 LIST
 MR. HARVEY RAIT
 5 PERI LANE
 VALLEY STREAM, N.Y. 11581

PLEASE SEND SUBMISSIONS TO:
 LISTING
 MR. FREDERIC STERN
 P.O. BOX 264
 HOLBROOK, N.Y. 11741

NYTSE

 NYTSE MEETS THE THIRD MONDAY IN
 THE MONTH AT:
 MISS KIMS RESTAURANT
 PARK AVENUE SOUTH
 BETWEEN 21 ST. AND 22 ST.
 MEETINGS START 7:30 PM.

 COMING EVENTS:

 FEB. 21, 1993 LIST MEETING.
 FEB. 15, 1993 NYTSE MEETING

MEETING MINUTES
 REPORTED BY:
 FRED STERN

JAN. 17, 1993

 HARVEY CALLED THE MEETING TO
 ORDER AT 2:45PM.

HARVEY REMINDED US THAT FEBRUARY
 IS DUES TIME. THE DATE ON THE
 LISTING ADDRESS LABEL IS WHEN
 YOUR DUES ARE DO. DO NOT BE
 DROPPED AS A LIST MEMBER. PAY
 YOUR DUES.

IN CORRESPONDENCE WE RECEIVED
 9 RENEWALS AND A NUMBER OF
 INFORMATION REQUEST LETTERS.

WE WERE SADDENED TO HEAR THAT
 JIM DUCAS IS MOVING TO BOSTON.
 WE ALL WISH HIM THE BEST OF LUCK
 AND WE WILL MISS HIM AT OUR
 MEETINGS.

FRED ADVISED THAT ENQUIRIES HAVE
 NOT AS YET BEEN MADE TO CABLE
 T.V. COMPANIES ABOUT PUBLIC
 ACCESS T.V. BROADCASTING A COM-
 PUTER INFORMATION SHOW.

HARVEY INFORMED US OF A LETTER
 WE RECEIVED FROM MR. FRED
 CARPENTER. (SEE PAGE 10) FRED
 UP-DATED A PROJECT WHICH APPEAR-
 ED IN THE DEC. 1992 ISSUE OF
 LISTING, AND ADVISED OF A BUG IN
 THE PERSONAL PORTFOLIO MANAGER
 PROGRAM FOR THE TS2068.

 * LIST * LIST * LIST * LIST *

 * LIST * LIST * LIST * LIST *

NEW BUSINESS

*** *****
 FRED INFORMED THE MEETING THAT
 CUBSCOUT PACK 552 OF HOLBROOK TO
 WHICH MICHAEL IS A MEMBER AND
 FRED A WEBLOS LEADER IS IN NEED
 OF A NEW SPONSOR. AS A NOT-FOR-
 PROFIT ORGANIZATION A REQUEST
 WAS MADE THAT LIST BECOME THE
 PACKS SPONSOR.
 THIS MOVE WOULD GIVE OUR GROUP
 MEDIA COVERAGE, AND POSSIBLY
 NEW MEMBERS FROM THE PACK WHO
 ARE INTERESTED IN COMPUTERS.
 THE GROUP COULD GIVE DEMONSTRAT-
 IONS TO SHOW THE TRUE POWER AND
 AFFORDABILITY OF OUR T/S MACH-
 INES AS COMPARED TO OTHERS.
 ON MAJORITY VOTE, LIST AGREED
 TO BECOME A SPONSOR FOR ONE
 YEAR. FRED WOULD ADVISE THE
 LEADERSHIP OF CUBSCOUT PACK 552.

BOB GILDER TOLD US OF A NEW DIG-
 ITIZER THAT HE PURCHASED FOR THE
 OL. (SEE PAGE 3) BOB ADVISED
 THAT HE WILL HAVE A DEMONSTRAT-
 ION THE NEXT MEETING.

PAUL CHOMITZ TOLD US OF HIS TRIP
 TO ENGLAND, AND DONATED BOOKS
 AND MAGAZINES TO THE LIST
 LIBRARY.

CLASSIFIEDS

 THIS CLASSIFIED SECTION IS
 AVAILABLE TO ALL LIST MEMBERS
 FREE OF CHARGE.
 THE ONLY RESTRICTION IS THAT
 IT IS TO BE USED ONLY FOR THE
 SEEKING, SELLING OR SWAPPING
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 COMPUTER EQUIPMENT, PERIPHERALS
 AND SOFTWARE.
 LISTING, LIST, AND ITS OFFICERS
 DO NOT ENDORSE, WARRANTY, OR
 GUARANTEE ANY OF THE ITEMS
 LISTED IN THIS CLASSIFIED
 SECTION

 THE FOLLOWING PUBLICATIONS ARE
 AVAILABLE ONLY THROUGH LIST:

ZX-81/TS1000 TECHNICAL TIDBITS
 TECHNICAL TIDBITS PART II
 SAVINGS AND LOAD OF THE TIMEX
 COMPUTER
 \$4.00 EACH.

I AM LOOKING FOR A SCHON INTERN-
 AL KEY BOARD INTERFACE WITH OR
 WITHOUT THE PC KEYBOARD IN GOOD
 OPERATING CONDITION. CONTACT
 BOB GILDER AT 516-541-2271, OR
 69 JEFFERSON PLACE, MASSAPEQUA
 N.Y. 11758

WANTED: WAFERS FOR A-J MICRO-
 DRIVE (2068 VERSION); ARTWORX;
 2068 STUFF YOU WANT TO SELL.
 MIKE STEPHEN
 312 NEWTON AVENUE
 ORKAND, CA. 94606-1320

A FINAL WORD

 MY NAME IS FRED STERN AND I AM
 THE EDITOR OF THIS EDITION OF
 LISTING.

SPECIAL THANKS TO: TOM SKAPINSKI
 , BOB GILDER, DON BERRY, DONALD
 LAMBERT, AND FRED CARPENTER FOR
 THEIR HELP AND ASSISTANCE.

QL CORNER

The day of Christmas eve was a very joyful one. It looked like Santa brought me the very Christmas present I had longed for the past two years. Santa was a friend and LIST member Paul Chomitz, owner of the R.G.C. Travel Agency Ltd., NYC. Paul advised me that he would be in London for two days and concented to call CL Systems when he arived in the UK and order their CQV1 QL Video Digitizer for me. The reason I didn't place the order from them was that CL Systems only deals in cash - no plastic.

In several past issues of QL WORLD there have been reviews for both the SPEM digitizer (Italy) and the CL Systems (U.K.) digitizer which generated much interest for me. I knew I had to have one!

Just what does a video digitizer do? The video digitizer converts normal video images into a digital format which can be saved to disk and/or printed to an Epson or Epson compatible printer.



The video digitizer plugs into the rear of the QL ROM (eprom) port. A standard double phono plug cable connects to a video source such as a video tape player and the other end of the cable is accepted by the video digitizer. That's all the hookup that is needed.

The digitizer has one control called 'black level'. The black level should be adjusted for the best picture quality while you are viewing the video through the QL Monitor. Do not confuse black level with the contrast or brightness control on your monitor. Black level affects the pixels for the screen dumps, where contrast and brightness only affect the screen image on the monitor.

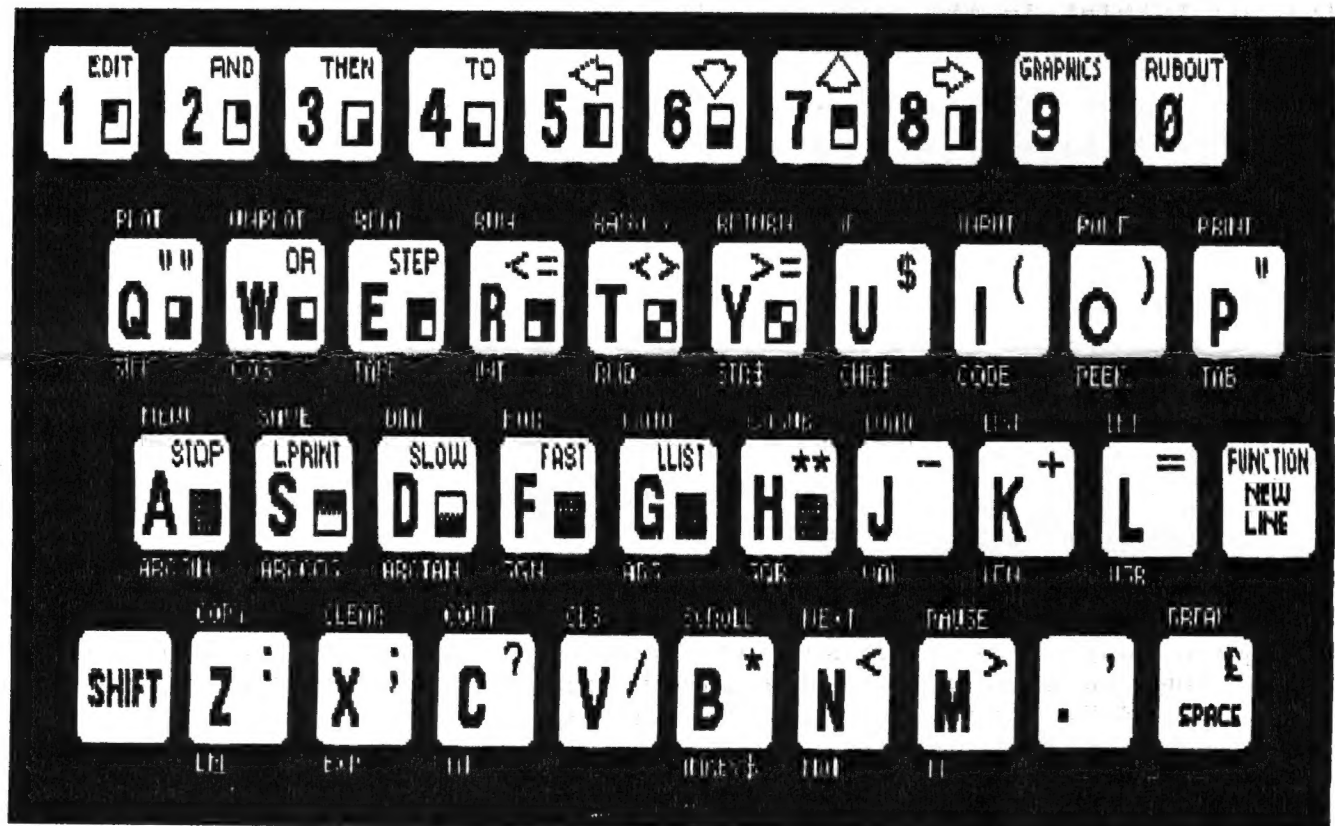
The screen dump appearing with this article is a sample of a digitized picture of Anita, my sister-in-law, using the screen dump procedure from the software provided by CL Systems, printed on an old Epson MX-80 printer. The Grey-scale is excellent because the software selects MODE 8, which provides eight levels of shading for the grey-scale. I found that using the monochrome mode of my monitor was best when using the video digitizer opposed to using color.

I had some doubts about using the digitizer until I read through the operating manual several times and then ran the software provided, which is on a 3.5" disk. A menu appears within a few seconds of loading the software and it is very easy to use, one keypress for each command and either an action occurs or a prompt appears, such as in loading or saving or printing screens. You can have a full screen, a quarter-screen or four-quarter screen. You can Invert or have a Negative picture at any time. You have the facilities to store a picture in memory, recall it at any time or merge it with another picture.

Pixel density for a full size picture is 256 X 256 as opposed to 128 X 128 pixels for the quarter-screen mode.

Reading about a video digitizer does not give you the best perspective; you have to either use it or see it in action. If you are interested in obtaining one, contact CL Systems, 403 Chapter Road, Dillis Hill, London NW2 5NG, U.K. Tel: 081-459-1351.
Cost is £99.00 plus £9.00 post & packing.

I will demonstrate the CQV1 video digitizer at the February LIST meeting - See you there..... Bob Gilder



ZXir QLive Alive!

From the desk of the Chairman

1301 KIBLINGER PLACE
AUBURN, IN 46706-3010
Tele: (219) 925-1372
11 23 1992

TRES. ROBERT MALLOY
5 PERRI LANE
VALLEY STREAM NY 11581

Dear Robert,

I see that my membership is running close to empty so I will vote for another year of LISTing Newsletter. My \$16.00 vote is enclosed.

About the only thing new is my playing with a program from Bill Pedersen that gives the first 8 RPMs of a disk drive so that you can tell if it is in the ball park of the correct RPM. According to the Tandon disk drive manual the RPM has a tolerance of $\pm 1.5\%$ but according to Bill that is not right since both the Larken and the Oliger disk interfaces have problems if the speed is greater than 300 RPM. So that means that the speed should be between 294.5 and 300. RPM. So far I only have the program for use on the Oliger disk interface. The program is for the 1770 disk controller chip so it should work on the Larken and the FDD too. But someone will need to change the program to allow that. What is off is the OUT port in the program. In checking some junk drives I had one that was reporting an RPM of 423. and another that reported 228. Some drives have a multiturn pot on them to tweak the RPM and some don't. The slow drive is a Tandon and it makes a rubbing sound and besides it has a dragging feel when turned by hand. Possible some lubrication will help, whatever the trouble is it is in the spindle and I think in the part that descends onto the disk. The program will also work on a 3.5 drive.

The important part is not the first one or two RPM but the following ones, and the evenness of the RPM. I also noted that if it access a drive that is not the one that was the last one selected that the first couple of RPM varies more than when it is accessed the second time. This is very handy to help pinpoint problems if you have been experiencing LOAD or SAVE failures.

Had a very interesting thing happen. I wanted to use the 3.5 drive and so I bought a kit to be able to use the 3.5 drive in a full sized case. It came with a pair of extenders, one for converting the 3.5 power to the same connector on a 5.25 disk drive and also a connector to convert the 3.5 drive to the same drive fingers that is on the 5.25 drive. Wouldn't work. Flat out refused to work. Much, much later I tested and found that the drive without the cable adaptor would work but with would not. Visually the adaptor looks good. But now I wonder - maybe one lead wasn't soldered to the plated thru hole or else the plated through hole wasn't actually plated through. Another day and another testing of the drive.

I'll put in a copy of the drive speed program for someone to use (public domain) if they have an Oliger disk interface. Or convert to use on the Larken or FDD 2068. Also a copy of the screen.

Sinclairly yours,


Donald S. Lambert

The program that Don described
is presented here. Also printed
with the program listing is some
of the screen dumps Don sent.

*MPL DRIVE
to TRACK*

DRIVE 2

WIDJUP DISK TESTING SERVICES DISK SPEED MEASUREMENT

The drive you select will be
tested for acceleration and
sustained speed.
Before proceeding, place a
disk in your selected drive and
close its door.

| Turn | RPM |
|------|--------|
| 1 | 297.22 |
| 2 | 297.44 |
| 3 | 297.55 |
| 4 | 297.71 |
| 5 | 297.88 |
| 6 | 297.88 |
| 7 | 297.88 |
| 8 | 297.38 |

PRESS ANY KEY TO CONTINUE

*HANDON
to TRACK*

DRIVE 3

WIDJUP DISK TESTING SERVICES DISK SPEED MEASUREMENT

The drive you select will be
tested for acceleration and
sustained speed.
Before proceeding, place a
disk in your selected drive and
close its door.

| Turn | RPM |
|------|--------|
| 1 | 291.50 |
| 2 | 297.11 |
| 3 | 298.71 |
| 4 | 299.27 |
| 5 | 299.49 |
| 6 | 299.27 |
| 7 | 299.55 |
| 8 | 299.32 |

PRESS ANY KEY TO CONTINUE

*HANDON
to TRACK*

DRIVE 1

WIDJUP DISK TESTING SERVICES DISK SPEED MEASUREMENT

The drive you select will be
tested for acceleration and
sustained speed.
Before proceeding, place a
disk in your selected drive and
close its door.

| Turn | RPM |
|------|--------|
| 1 | 287.53 |
| 2 | 298.16 |
| 3 | 298.28 |
| 4 | 298.45 |
| 5 | 298.50 |
| 6 | 298.39 |
| 7 | 295.96 |
| 8 | 296.07 |

PRESS ANY KEY TO CONTINUE

*HANDON
to TRACK*

DRIVE 2

WIDJUP DISK TESTING SERVICES DISK SPEED MEASUREMENT

The drive you select will be
tested for acceleration and
sustained speed.
Before proceeding, place a
disk in your selected drive and
close its door.

| Turn | RPM |
|------|--------|
| 1 | 303.05 |
| 2 | 301.86 |
| 3 | 299.10 |
| 4 | 296.07 |
| 5 | 298.00 |
| 6 | 296.83 |
| 7 | 296.56 |
| 8 | 296.23 |

PRESS ANY KEY TO CONTINUE

```

5>RESTORE 101: FOR n=39936 TO
40007: READ w: POKE n,w: NEXT n
101 DATA 243,33,72,156,1,143,0,
62,208,237,121,16,-2,205,56,156,
205,56,156,46,-5,205,56,156,56,-
5,6,8,197,17,0,0,205,51,156,48,-
5,205,51,156,56,-5,115,35,114,35
,193,16,-21,251,201
102 DATA 6,1,16,-2,19,62,127,21
9,254,246,224,60,40,2,207,20,237
,120,31,31,201,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0
500 CLS: PRINT " WIDJUP DISK
TESTING SERVICES "
520 PRINT " The drive you se
lect will be tested for acceler
ation and sustained speed."
" Before proceeding, place a
disk in your selected drive an
d close its door."
530 INPUT "Which drive? (0 TO 3
) ":w
531 OUT 183,0: PAUSE 60: OUT 18
3,2↑w: OUT 143,0
532 LET w=USR 39936
533 INK 1: PLOT 100,81: DRAW 15
0,0: PLOT 100,72: DRAW 150,0: PL
OT 100,63: DRAW 150,0: INK 0
534 PRINT " Turn RPM": ON ERR
GO TO 548: FOR n=40008 TO 40023
STEP 2: LET w=PEEK n+256*PEEK (
n+1)
535 LET w$=STR$ (1505000/w)
536 IF LEN w$>6 THEN LET w$=w$
TO 6)
537 PRINT " ";N/2-20003;" ";w
$
538 INK 1: PLOT 8*(n-39994),70+
2.5*(VAL w$-300): DRAW 2,0: DRAW
0,4: DRAW -4,0: DRAW 0,-4: DRAW
2,0: INK 0
548 NEXT n: ON ERR RESET
550 PRINT " PRESS ANY KEY
TO CONTINUE " : PAUSE 0: GO TO
500
9999 CLEAR: SAVE //"DISKSPEED"
LINE 1

```

11-18-92
1009 Locust St.
Benbrook, TX 76126

LIST

5 Peri Lane
Valley Stream, NY 11581

Gentlemen,

Hi from a new member. I am a Mechanical Engineer by profession, and enclosed is a program for the newsletter. Naturally, it is technical in nature, like me. It is a curve fit program. Data is entered just once and 8 different curves may be tested to see how accurately they fit the data. the data is a set of x and y values. By regression, the curves produce a formula to approximate values of Y, given X. The coefficients for the equations as well as the accuracy (correlation) are computed. It works surprisingly fast, even on the trusty TS1000.

Since it is written entirely in BASIC, it could be typed directly into a TS2068 also.

The best correlation is "1.0". The closest curve to a correlation of 1.0 is the best "fit". After selecting the best "fit", the curve may be tested by inputting values of X and computing Y.

The only hang-up is that all data (X and Y), must be greater than 0. This is because for curves 2, 6, 7, and 8, logarithms of input data are computed. Since logs of negative numbers are undefined, this produces an error message. For negative data, the program would have to be modified by deleting the computations of logs (such as $\sin x$, $\sin y$, etc.) The variable $\sin x$ means the sum of $\ln(x)$, in case you were wondering. This means curves 2, 6, 7, and 8 cannot be used for negative data.

This problem will be handled by a polynomial curve fit program that I also have (if there is interest in it). The polynomial curve fit can easily handle positive and negative data.

I would be interested to know reader feed back on this program.

Sincerely,

Don Berry

```

10 REM MULTICURVE
20 REM BY DH BERRY 11-2-92
30 CLS
40 PRINT
50 PRINT "THIS PROGRAM FITS A
SET"
60 PRINT "OF X, Y DATA TO ANY
OF"
65 PRINT "8 DIFFERENT CURVES.
DATA"
70 PRINT "IS ENTERED JUST ONCE
"
75 PRINT "NOTE: DATA MUST BE >
0"
80 PRINT
90 PRINT "INPUT 5 TO START"
100 PRINT
110 INPUT S$
120 IF S$="5" THEN GOTO 150
130 IF S$("<")"5" THEN GOTO 1
150 REM INITIALIZATION
160 LET SY=0
170 LET SY2=0
180 LET SX=0
190 LET SX2=0
200 LET SXY=0
210 LET SLNX=0
220 LET SLNX2=0
230 LET SYLNX=0
240 LET SX4=0
250 LET SX2Y=0
260 LET S1DX=0
270 LET S1X2=0
280 LET SYDX=0
290 LET S1DY=0
300 LET S1DY2=0
310 LET SXDY=0
320 LET SLNY=0
330 LET SLNY2=0
340 LET SXLNY=0
350 LET SLNXLNY=0
360 LET S1DX2=0
460 FAST
470 CLS
480 PRINT
490 PRINT "INPUT NO. OF DATA PO
INT3"
500 PRINT
510 INPUT N
520 PRINT
530 PRINT N
540 PRINT
550 FOR I=1 TO N
560 PRINT "INPUT X"; I
570 PRINT
580 INPUT X
590 PRINT
600 PRINT X
610 PRINT
620 PRINT "INPUT Y"; I
630 PRINT
640 INPUT Y
650 PRINT
660 PRINT Y
670 LET SY=SY+Y
680 LET SY2=SY2+Y*Y
690 LET SX=SX+X
700 LET SX2=SX2+X*X
710 LET SXY=SXY+X*Y
720 LET SLNX=SLNX+LN X
730 LET SLNX2=SLNX2+(LN X)*(LN
X)
740 LET SYLNX=SYLNX+Y*LN X
750 LET SX4=SX4+X**4
760 LET SX2Y=SX2Y+X*X*Y
770 LET S1DX=S1DX+1/X
780 LET S1X2=S1X2+(1/X)**2
790 LET SYDX=SYDX+Y/X
800 LET S1DY=S1DY+1/Y
810 LET S1DY2=S1DY2+(1/Y)**2
820 LET SXDY=SXDY+X/Y
830 LET SLNY=SLNY+LN Y
840 LET SLNY2=SLNY2+(LN Y)*(LN
Y)
850 LET SXLNY=SXLNY+X*LN Y
860 LET SLNXLNY=SLNXLNY+LN X*LN
Y

```

```

870 LET S1DX2=S1DX2+(1/X)**2
900 CLS
910 NEXT I
930 CLS
940 PRINT
950 PRINT "CURVE FIT MENU"
960 PRINT "(SOLVE FOR A AND B)"
970 PRINT "1 -- Y = A + B*X (LI
NEAR)"
980 PRINT
990 PRINT "2 -- Y = A+B*LN(X) (
LOGARITHMIC)"
1000 PRINT
1010 PRINT "3 -- Y = A+B*X**2 (
QUADRATIC)"
1020 PRINT
1030 PRINT "4 -- Y = A+B/X (HYP
ERBOLIC)"
1040 PRINT
1050 PRINT "5 -- Y=1/(A+B*X) (INV
ERSE LINEAR)"
1060 PRINT
1070 PRINT "6 -- Y = A*B**X (GEO
METRIC)"
1080 PRINT
1090 PRINT "7 -- Y = A*X**B (POW
ER)"
1100 PRINT
1110 PRINT "8 -- Y = A*E**(B*X) (
EXPONENTIAL)"
1120 PRINT " (E=2.7182818)"
1130 PRINT
1140 PRINT "INPUT NO. CHOICE"
1150 INPUT C
1170 IF C=1 THEN GOTO 1300
1180 IF C=2 THEN GOTO 1600
1190 IF C=3 THEN GOTO 1940
1200 IF C=4 THEN GOTO 2280
1210 IF C=5 THEN GOTO 2610
1220 IF C=6 THEN GOTO 2970
1230 IF C=7 THEN GOTO 3380
1240 IF C=8 THEN GOTO 3760
1250 GOTO 930
1300 REM LINEAR FIT
1310 LET B=((N*SXY-(SX*S)/N)/(N*S
X2-(SX**2)/N))
1320 LET A=(SY-B*SX)/N
1330 LET RN=(N*SXY-SX*SY)/(N*SXY
-SX*SY)
1340 LET RD=(N*SX2-SX*SX)/(N*SY2
-SY*SY)
1350 LET R=(RN/RD)
1360 CLS
1370 PRINT
1380 PRINT "LINEAR MODEL:"
1385 PRINT
1390 GOSUB 6500
1490 REM LINEAR FIT
1500 GOSUB 6000
1510 LET Y=A+B*X
1520 PRINT
1530 PRINT "FOR X = "; X
1535 PRINT
1540 PRINT " Y = "; Y
1550 PRINT
1560 PRINT "ANOTHER X ? (Y/N)"
1565 PRINT
1570 INPUT B$
1580 IF B$="N" THEN GOTO 4170
1590 IF B$="Y" THEN GOTO 1490
1620 REM LOGARITHMIC
1630 LET B=(N*SYLNX-SY*SLNX)/(N
*SLNX2-SLNX*(LN X))
1640 LET A=(SY-B*SLNX)/N
1650 LET RN=(N*SYLNX-SY*SLNX)/(N
*SYLNX-SY*SLNX)
1660 LET RD=(N*SLNX2-SLNX*(LN X))/(
N*SY2-SY*SY)
1670 LET R=(RN/RD)
1680 CLS
1690 PRINT
1700 PRINT "LOGARITHMIC MODEL"
1705 PRINT
1710 GOSUB 6500
1795 IF A$="Y" THEN GOTO 1810
1810 REM LOG FIT

```



```

1820 GOSUB 6000
1830 LET Y=A+B*LN X
1840 PRINT
1850 PRINT "FOR X = ";X
1860 PRINT
1870 PRINT "      Y = ";Y
1880 PRINT
1890 PRINT "ANOTHER ? (Y/N)"
1900 PRINT
1910 INPUT B$
1920 IF B$="N" THEN GOTO 4250
1930 IF B$="Y" THEN GOTO 1810
1940 REM QUADRATIC
1950 LET B=(N*5X2Y-SX2*5Y)/(N*5X
4-5X2*5X2)
1960 LET A=(5Y-B*5X2)/N
1970 LET RN=(N*5X2Y-SX2*5Y)*(N*5
X2Y-5X2*5Y)
1980 LET RD=(N*5X4-SX2*5X2)*(N*5
Y2-5Y*5Y)
1990 LET R=(RN/RD)
2000 CLS
2010 PRINT
2020 PRINT "QUADRATIC MODEL:"
2030 PRINT
2040 PRINT "Y = A + B*X**2"
2050 PRINT
2060 GOSUB 6500
2070 IF B$="N" THEN GOTO 4330
2080 IF B$="Y" THEN GOTO 2160
2090 REM QUADRATIC
2100 GOSUB 6000
2110 LET Y=A+B**X
2120 PRINT
2130 PRINT "FOR X = ";X
2140 PRINT
2150 PRINT "      Y = ";Y
2160 PRINT
2170 PRINT "ANOTHER X ? (Y/N)"
2180 INPUT B$
2190 IF B$="N" THEN GOTO 4330
2200 IF B$="Y" THEN GOTO 2160
2210 REM HYPERBOLIC
2220 LET B=(N*5YDX-S1DX*5Y)/(N*5
1DX2-S1DX**2)
2230 LET A=(5Y-B*51DX)/N
2240 LET RN=(N*5YDX-S1DX*5Y)*(N*
5YDX-S1DX*5Y)
2250 LET RD=(N*51X2-S1DX**2)*(N*
5Y2-SY*5Y)
2260 LET R=(RN/RD)
2270 CLS
2280 PRINT
2290 PRINT "HYPERBOLIC MODEL:"
2300 PRINT
2310 PRINT "Y = A + B/X"
2320 PRINT
2330 GOSUB 6500
2340 IF B$="N" THEN GOTO 4410
2350 IF B$="Y" THEN GOTO 2360
2360 REM INVERSE LINEAR
2370 LET B=(N*5XDY-SX*51DY)/(N*5
X2-SX*5X)
2380 LET A=(51DY-B*5X)/N
2390 LET RN=(N*5XDY-SX*51DY)*(N*
5XDY-SX*51DY)
2400 LET RD=(N*5X2-SX*5X)*(N*51D
Y2-S1DY*51DY)
2410 LET R=(RN/RD)
2420 CLS
2430 PRINT
2440 PRINT "INVERSE LINEAR MODEL"
2450 PRINT
2460 PRINT "Y = 1/(A + B*X)"
2470 PRINT
2480 GOSUB 6500
2490 REM INVERSE LINEAR
2500 GOSUB 6000
2510 LET Y=1/(A+B*X)
2520 PRINT
2530 PRINT "FOR X = ";X
2540 PRINT
2550 PRINT "      Y = ";Y
2560 PRINT
2570 PRINT "ANOTHER ? (Y/N)"

```

```

2580 PRINT
2590 INPUT B$
2600 IF B$="Y" THEN GOTO 4480
2610 IF B$="Y" THEN GOTO 2740
2620 REM GEOMETRIC
2630 LET Z1=(N*5XLNY-SX*5LNY)/(
*5X2-SX*5X)
2640 LET B=EXP Z1
2650 LET Z2=(5LNY-B*5LNX)/N
2660 LET A=EXP Z2
2670 LET RN=(N*5XLNY-SX*5LNY)*(N
*5XLNY-SX*5LNY)
2680 LET RD=(N*5X2-SX*5X)*(N*5L
N*5LNY*5LNY)
2690 LET R=(RN/RD)
2700 CLS
2710 PRINT
2720 PRINT "GEOMETRIC MODEL:"
2730 PRINT
2740 PRINT "Y = A*B**X"
2750 PRINT
2760 GOSUB 6500
2770 PRINT
2780 REM GEOMETRIC
2790 GOSUB 6000
2800 LET Y=A*B**X
2810 PRINT
2820 PRINT "FOR X = ";X
2830 PRINT
2840 PRINT "      Y = ";Y
2850 PRINT
2860 PRINT "ANOTHER ? (Y/N)"
2870 PRINT
2880 INPUT B$
2890 IF B$="Y" THEN GOTO 4550
2900 IF B$="Y" THEN GOTO 3240
2910 REM POWER MODEL
2920 LET B=(N*5LNXLNY-SLNX*5LNY)
/(N*5LNX2-SLNX*5LNX)
2930 LET Z=(5LNY-B*5LNX)/N
2940 LET A=EXP Z
2950 LET RN=(N*5LNXLNY-SLNX*5LNY
*5LNY)
2960 LET RD=(N*5LNX2-SLNX*5LNX)*(
N*5LNY2-SLNY*5LNY)
2970 LET R=(RN/RD)
2980 CLS
2990 PRINT
3000 PRINT "POWER MODEL:"
3010 PRINT
3020 PRINT "Y = A*X**B"
3030 PRINT
3040 GOSUB 6500
3050 REM POWER
3060 GOSUB 6000
3070 LET Y=A*X**B
3080 PRINT
3090 PRINT "FOR X = ";X
3100 PRINT
3110 PRINT "      Y = ";Y
3120 PRINT
3130 PRINT "ANOTHER ? (Y/N)"
3140 PRINT
3150 INPUT B$
3160 IF B$="Y" THEN GOTO 4630
3170 IF B$="Y" THEN GOTO 3630
3180 REM EXPONENTIAL
3190 LET B=(N*5XLNY-SX*5LNY)/(N*
5X2-SX*5X)
3200 LET Z=(5LNY-B*5X)/N
3210 LET A=EXP Z
3220 LET RN=(N*5XLNY-SX*5LNY)*(N
*5XLNY-SX*5LNY)
3230 LET RD=(N*5X2-SX*5X)*(N*5L
N*5LNY*5LNY)
3240 LET R=(RN/RD)
3250 CLS
3260 PRINT
3270 PRINT "EXPONENTIAL MODEL:"
3280 PRINT
3290 PRINT "Y = A*E**(B*X)"
3300 PRINT "      (E = 2.71814)"
3310 PRINT
3320 GOSUB 6500
3330 REM EXPONENTIAL
3340 GOSUB 6000
3350 LET Y=A*EXP (B*X)
3360 PRINT
3370 PRINT "FOR X = ";X
3380 PRINT
3390 PRINT

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4070 PRINT "      Y = ";Y
4080 PRINT
4090 PRINT "ANOTHER X ? (Y/N)"
4100 PRINT
4110 INPUT B$
4120 IF B$ <> "Y" THEN GOTO 4710
4130 IF B$ = "Y" THEN GOTO 4020
4160 REM FINAL DISPLAYS
4170 CLS
4180 PRINT
4190 PRINT "LINEAR MODEL:"
4200 PRINT
4210 PRINT "Y = A + B*X"
4220 GOSUB 6160
4230 STOP
4250 CLS
4260 PRINT
4270 PRINT "LOGARITHMIC MODEL:"
4280 PRINT
4290 PRINT "Y = A + B*LN(X)"
4300 GOSUB 6160
4310 STOP
4330 CLS
4340 PRINT
4350 PRINT "QUADRATIC MODEL:"
4360 PRINT
4370 PRINT "Y = A + B*X**2"
4380 GOSUB 6160
4390 STOP
4410 CLS
4420 PRINT
4430 PRINT "HYPERBOLIC MODEL:"
4440 PRINT
4450 PRINT "Y = A + B/X"
4460 GOSUB 6160
4470 STOP
4480 CLS
4490 PRINT
4500 PRINT "INVERSE LINEAR MODEL:"
4510 PRINT
4520 PRINT "Y = 1/(A + B*X)"
4530 GOSUB 6160
4540 STOP
4550 CLS
4560 PRINT
4570 PRINT "GEOMETRIC MODEL:"
4580 PRINT
4590 PRINT "Y = A*B**X"

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4600 GOSUB 6160
4610 STOP
4630 CLS
4640 PRINT
4650 PRINT "Y = A*X**B"
4660 GOSUB 6160
4690 STOP
4710 CLS
4720 PRINT
4730 PRINT "EXPONENTIAL MODEL:"
4740 PRINT
4750 PRINT "Y = A*E**(B*X)"
4760 GOSUB 6160
4770 STOP
4800 REM TEST MODEL
4810 CLS
4820 PRINT
4830 PRINT "GIVEN X, CALCULATE Y"
4840 PRINT
4850 PRINT "INPUT X"
4860 PRINT
4870 INPUT X
4880 PRINT
4890 PRINT X
4910 PRINT
4910 RETURN
4950 REM DISPLAY CONSTANTS
4970 PRINT
4980 PRINT "A = ";A
4990 PRINT
5000 PRINT "B = ";B
5010 PRINT
5020 PRINT "CORRELATION = ";R
5030 PRINT
5040 RETURN
5080 REM DISPLAY CONSTANTS
5090 PRINT "A = ";A
5100 PRINT
5110 PRINT "B = ";B
5120 PRINT
5130 PRINT "CORRELATION = ";R
5140 PRINT
5150 PRINT "OK ? (Y/N)"
5160 PRINT
5170 INPUT A$
5180 IF A$ <> "Y" THEN GOTO 930
5190 IF A$ = "Y" THEN RETURN
5200 RETURN

```

LIST
 5 PERI LANE
 VALLEY STREAM NY
 11581
 1-12-93

Enclosed find check for \$16.00, annual
 dues for 1993.

I) A project "CLEARER VIDEO" appeared on
 page 9 of the 12-92 issue of LIST. RADIO
 SHACK (RS) did not have a "perite loopstick
 antenna core". I purchased:

(a) 12' phone plug to phone plug cable,
 RS # 42-2368 @ \$3.49

(b) CLIP-ON FERRITE DATA LINE FILTER
 RS # 273-105 @ \$4.99

After assembly, following the LIST article,
 it worked!

II) My original copy of T/S 2068 cassette "PERSONAL
 PORT FOLIO MANAGER" has two easily corrected bugs:
 (i) Listing 10 or more stocks runs into a "PRINT AT Line";
 (ii) a later (Y/N) is missing.

Fred M. Carpenter